

Serial No. 10/668,411
Amendment Under 37 CFR 1.116
Reply to final Office Action of July 12, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A method of making a coated abrasive article comprising the steps of:
 - (a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a production tool, wherein the production tool is shaped to include a plurality of protruding units distributed in two dimensions, wherein each protruding unit has a base that has a periphery, wherein, for each unit, its respective distal region, when projected on to a plane that is coplanar with its respective base, falls within the periphery of the base, and defines an offset vector between the projection of the distal region and a center point of the base; and wherein the offset vectors for the plurality of protruding units do not exhibit a sum that approaches a limit of zero;
 - (b) introducing a backing to the outer surface of the production tool such that the slurry wets one side of the backing to form an intermediate article;
 - (c) at least partially curing the binder before the intermediate article departs from the outer surface of the production tool to form a coated abrasive article; and
 - (d) removing the coated abrasive article from the production tool.
2. (original) The method of claim 1, wherein each distal region is linear.
3. (original) The method of claim 2, wherein each distal region is rectilinear.
4. (original) The method of claim 2, wherein each distal region is curvilinear.
5. (original) The method of claim 1, wherein each base is a parallelogram.

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6. (original) The method of claim 5, wherein none of the sides of the parallelogram is parallel to an edge of an article upon which the abrasive array is disposed.
7. (canceled)
8. (original) The method of claim 1, wherein consecutive bases do not abut.
9. (currently amended) A method of abrading a surface of a workpiece comprising steps of:
 - (a) providing a coated abrasive article comprising a backing having attached to at least one major surface thereof a plurality of abrasive composites, wherein the abrasive composites include a plurality of protruding units distributed in two dimensions,
 - wherein each protruding unit has a base that has a periphery,
 - wherein, for each unit, its respective distal region, when projected on to a plane that is coplanar with its respective base, falls within the periphery of the base, and defines an offset vector between the projection of the distal region and a center point of the base; and
 - wherein the offset vectors for the plurality of protruding units do not exhibit a sum ~~that approaches a limit~~ of zero;
 - (b) placing the surface of said article having abrasive composites attached thereto in contact with the surface of said workpiece; and
 - (c) moving at least one of the surface of said article or the surface of said workpiece with respect to the other so as to abrade the surface of said workpiece.
10. (original) The method of claim 9, wherein each distal region is linear.
11. (original) The method of claim 10, wherein each distal linear region is rectilinear.
12. (original) The method of claim 10, wherein each distal linear region is curvilinear.

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13. (original) The method of claim 9, wherein each base is a parallelogram.
14. (original) The method of claim 13, wherein none of the sides of the parallelogram is parallel to an edge of an article upon which the abrasive array is disposed.
15. (canceled)
16. (original) The method of claim 9, wherein consecutive bases do not abut.
17. (currently amended) A method of making a coated abrasive article comprising the steps of:
- (a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a surface of a backing;
 - (b) introducing a production tool to the surface of the backing on which the slurry has been introduced to form an intermediate article, wherein the production tool is shaped to include a plurality of protruding units distributed in two dimensions,
 - wherein each protruding unit has a base that has a periphery,
 - wherein, for each unit, its respective distal region, when projected on to a plane that is coplanar with its respective base, falls within the periphery of the base, and defines an offset vector between the projection of the distal region and a center point of the base;
 - and
 - wherein the offset vectors for the plurality of protruding units do not exhibit a sum that approaches a limit of zero;
 - (c) at least partially curing the binder before the intermediate article departs from the production tool to form a coated abrasive article; and
 - (d) removing the coated abrasive article from the production tool.
18. (original) The method of claim 17, wherein each distal region is linear.

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19. (original) The method of claim 18, wherein each distal linear region is rectilinear.
20. (original) The method of claim 18, wherein each distal linear region is curvilinear.
21. (original) The method of claim 17, wherein each base is a parallelogram.
22. (original) The method of claim 21, wherein none of the sides of the parallelogram is parallel to an edge of an article upon which the abrasive array is disposed.
23. (canceled)
24. (original) The method of claim 17, wherein consecutive bases do not abut.
25. (currently amended) A method of making a coated abrasive article comprising the steps of:
 - (a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a production tool, wherein the production tool is shaped to include a plurality of protruding units distributed in two dimensions, wherein each protruding unit has a base that has a periphery, wherein, for each unit, its respective distal region, when projected on to a plane that is coplanar with its respective base, falls within the periphery of the base, and defines an offset vector between the projection of the distal region and a center point of the base; and wherein the offset vectors for the plurality of protruding units do not exhibit a sum that approaches a limit of zero;
 - (b) introducing a backing to the outer surface of the production tool such that the slurry wets one side of the backing to form an intermediate article;
 - (c) removing the intermediate article from the production tool; and
 - (d) curing the binder to form a coated abrasive article.

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26. (original) The method of claim 25, wherein each distal region is linear.
27. (original) The method of claim 26, wherein each distal region is rectilinear.
28. (original) The method of claim 26, wherein each distal region is curvilinear.
29. (original) The method of claim 25, wherein each base is a parallelogram.
30. (original) The method of claim 29, wherein none of the sides of the parallelogram is parallel to an edge of an article upon which the abrasive array is disposed.
31. (canceled)
32. (original) The method of claim 25, wherein consecutive bases do not abut.
33. (currently amended) A method of making a coated abrasive article comprising the steps of:
- (a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a surface of a backing;
 - (b) introducing a production tool to the surface of the backing on which the slurry has been introduced to form an intermediate article, wherein the production tool is shaped to include a plurality of protruding units distributed in two dimensions,
 - wherein each protruding unit has a base that has a periphery,
 - wherein, for each unit, its respective distal region, when projected on to a plane that is coplanar with its respective base, falls within the periphery of the base, and defines an offset vector between the projection of the distal region and a center point of the base;
 - and
 - wherein the offset vectors for the plurality of protruding units do not exhibit a sum that approaches a limit of zero;
 - (c) removing the intermediate article from the production tool; and

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(d) curing the binder to form a coated abrasive article.

34. (original) The method of claim 33, wherein each distal region is linear.
35. (original) The method of claim 34, wherein each distal region is rectilinear.
36. (original) The method of claim 34, wherein each distal region is curvilinear.
37. (original) The method of claim 33, wherein each base is a parallelogram.
38. (original) The method of claim 37, wherein none of the sides of the parallelogram is parallel to an edge of an article upon which the abrasive array is disposed.
39. (canceled)
40. (original) The method of claim 33, wherein consecutive bases do not abut.
41. (new) The method of claim 1, wherein the offset vector for each of the plurality of protruding units is the same.
42. (new) The method of claim 9, wherein the offset vector for each of the plurality of protruding units is the same.
43. (new) The method of claim 17, wherein the offset vector for each of the plurality of protruding units is the same.
44. (new) The method of claim 25, wherein the offset vector for each of the plurality of protruding units is the same.

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45. (new) The method of claim 33, wherein the offset vector for each of the plurality of protruding units is the same.